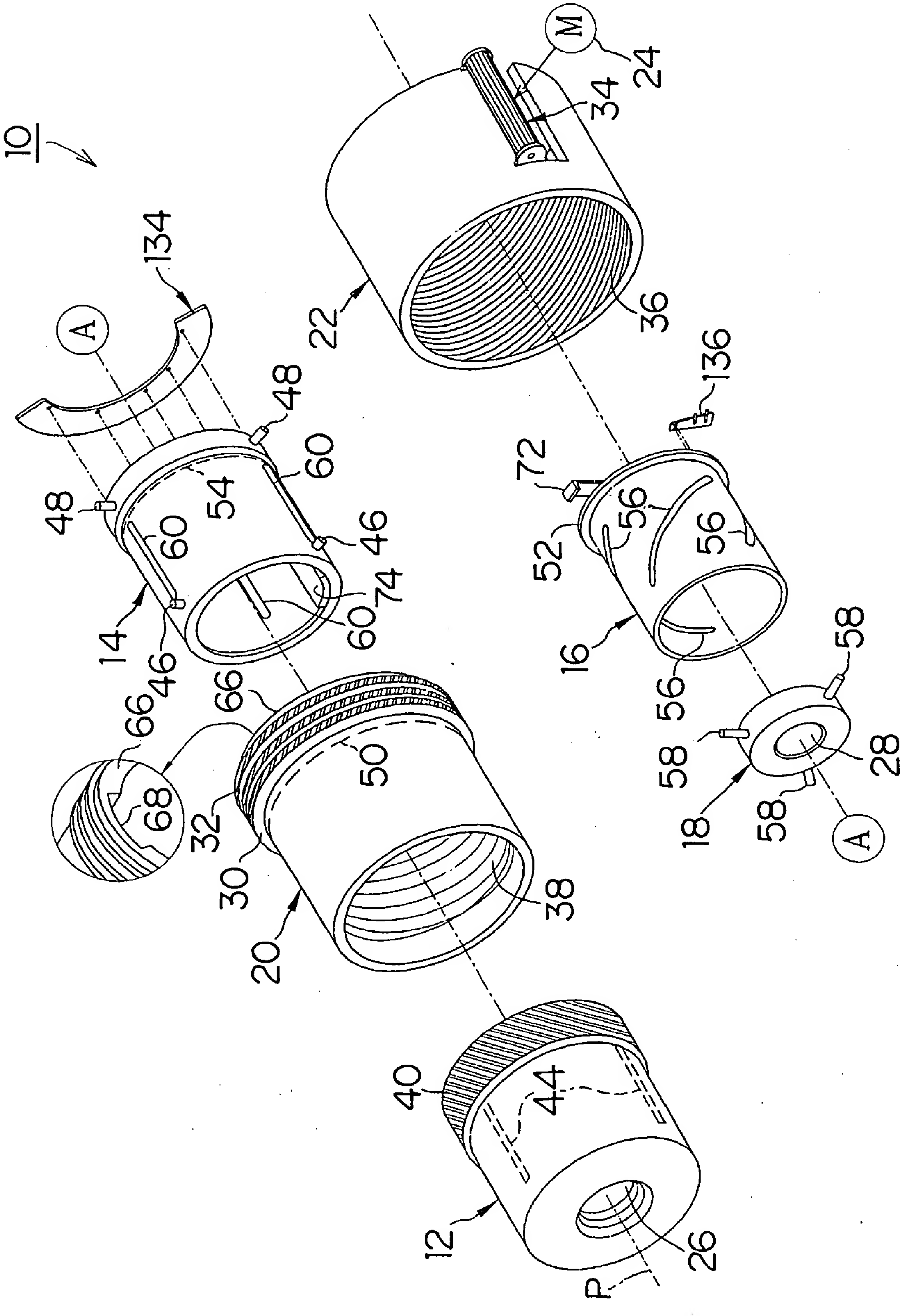
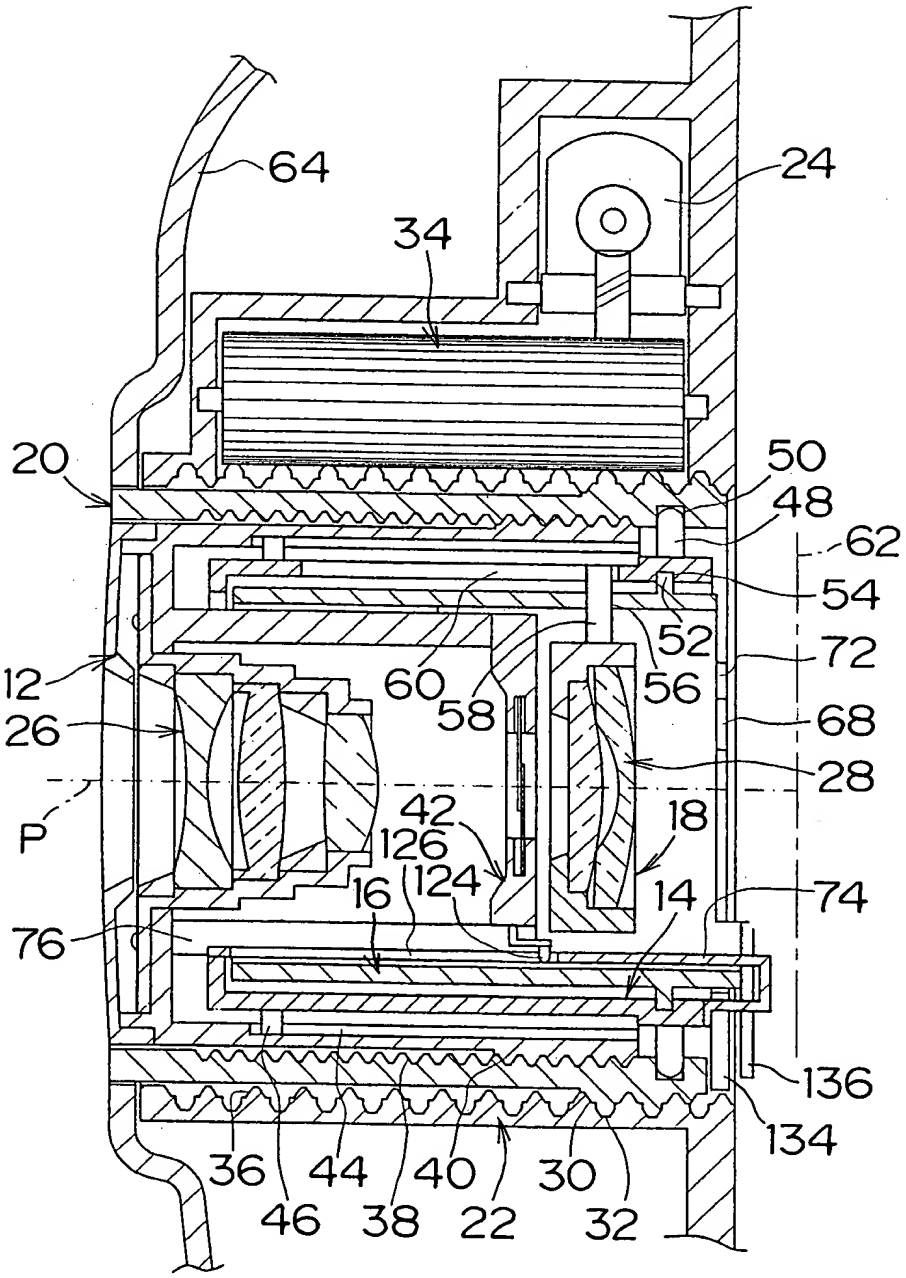
ZOOM LENS DEVICE
TAKESHITA et al Q65093
Filed: June 27, 2001
Darryl Mexic 202-293-7060



F I G. 1

FIG. 2


64
24
34
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62
54
52
72
12
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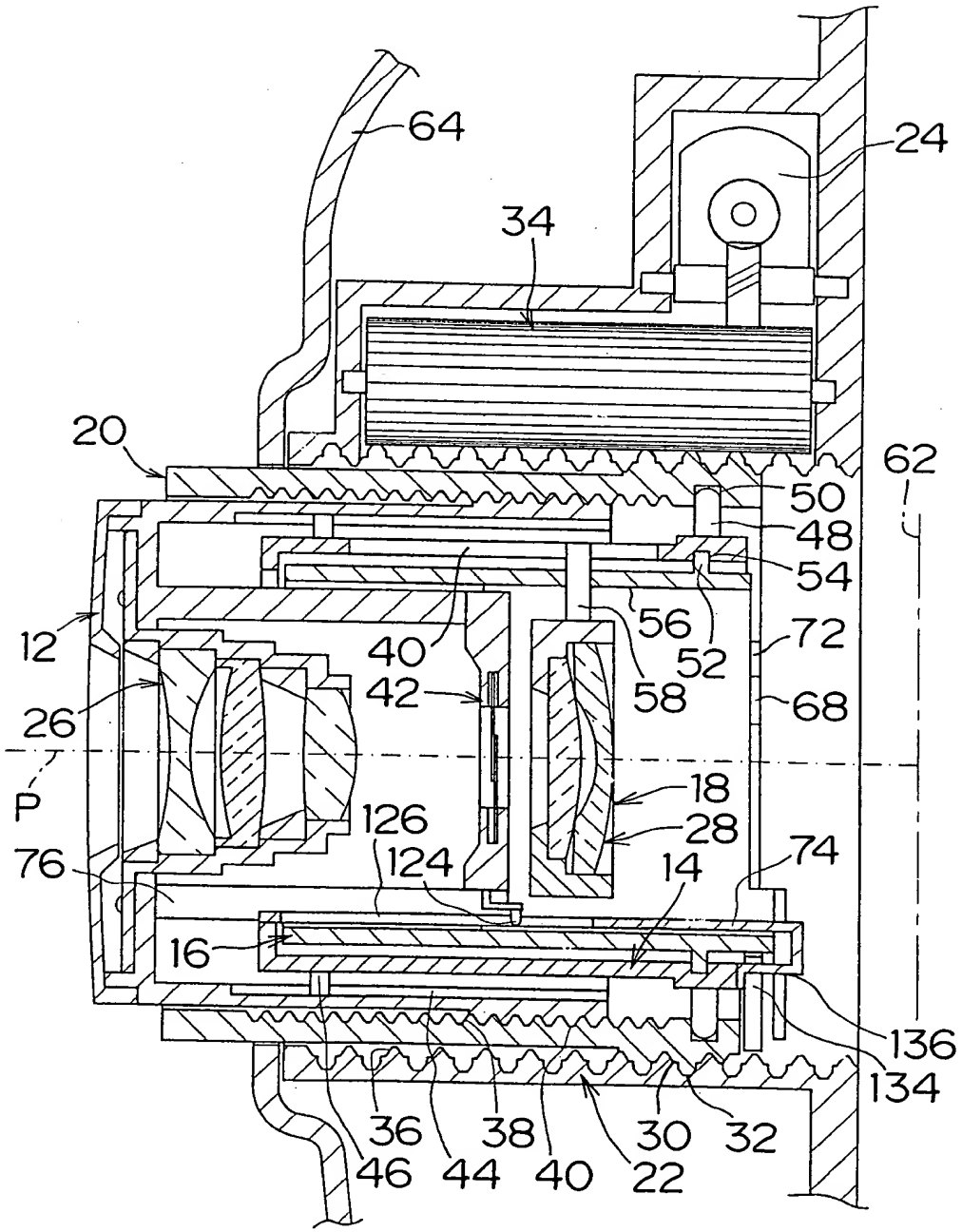
58
56
26
68
28
P
42
18
126
124
16
14
74
76
136
134
36
44
40
30
46
38
22
32

FIG. 3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34
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42
58
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124
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134
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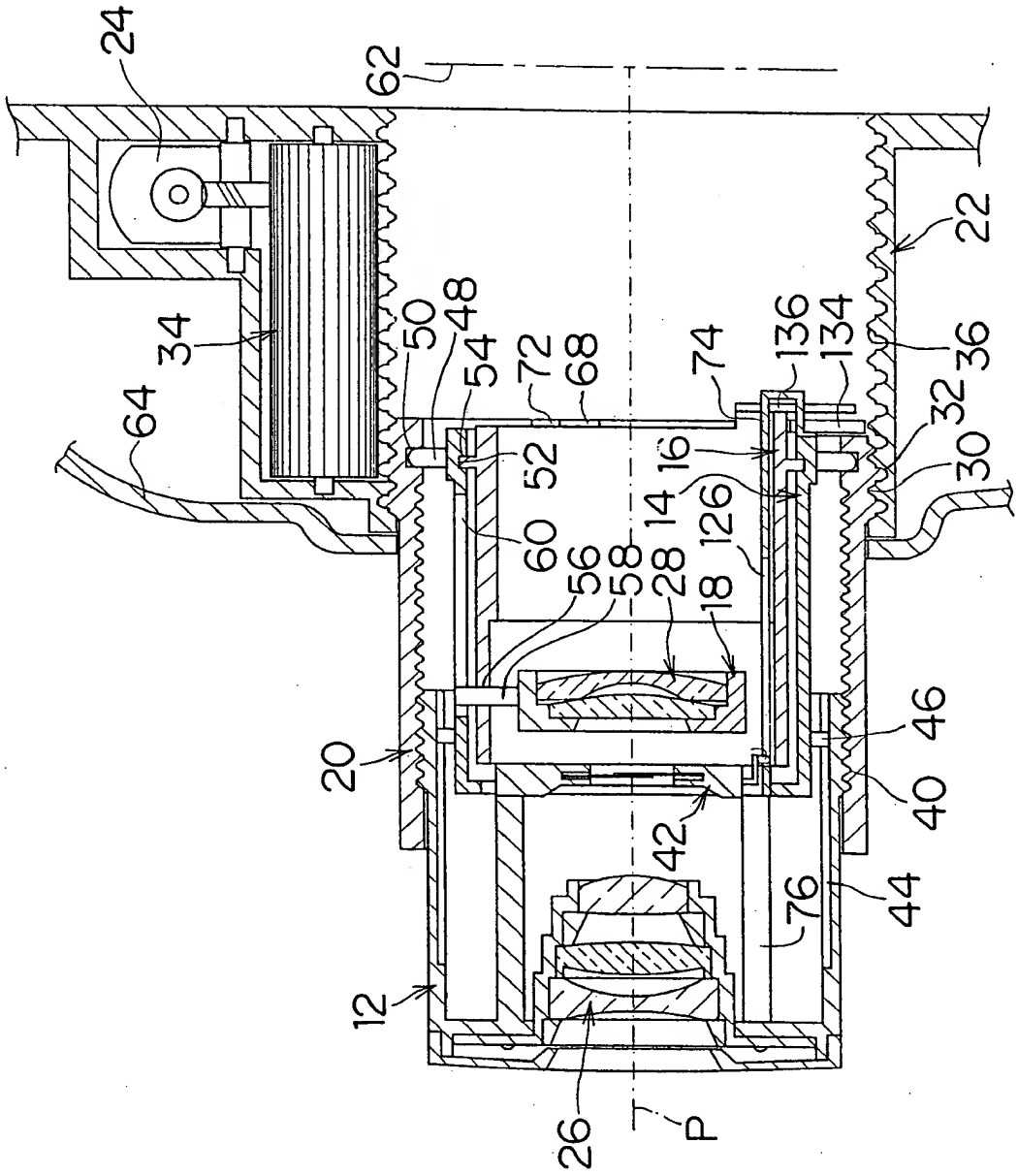
46
44
40
22


24
62
22
34
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68
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136
134
36
64
32
30
52
16
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126
60
56
58
28
18
20
46
40
42
76
44
12
26
P

FIG. 4

FIG. 5

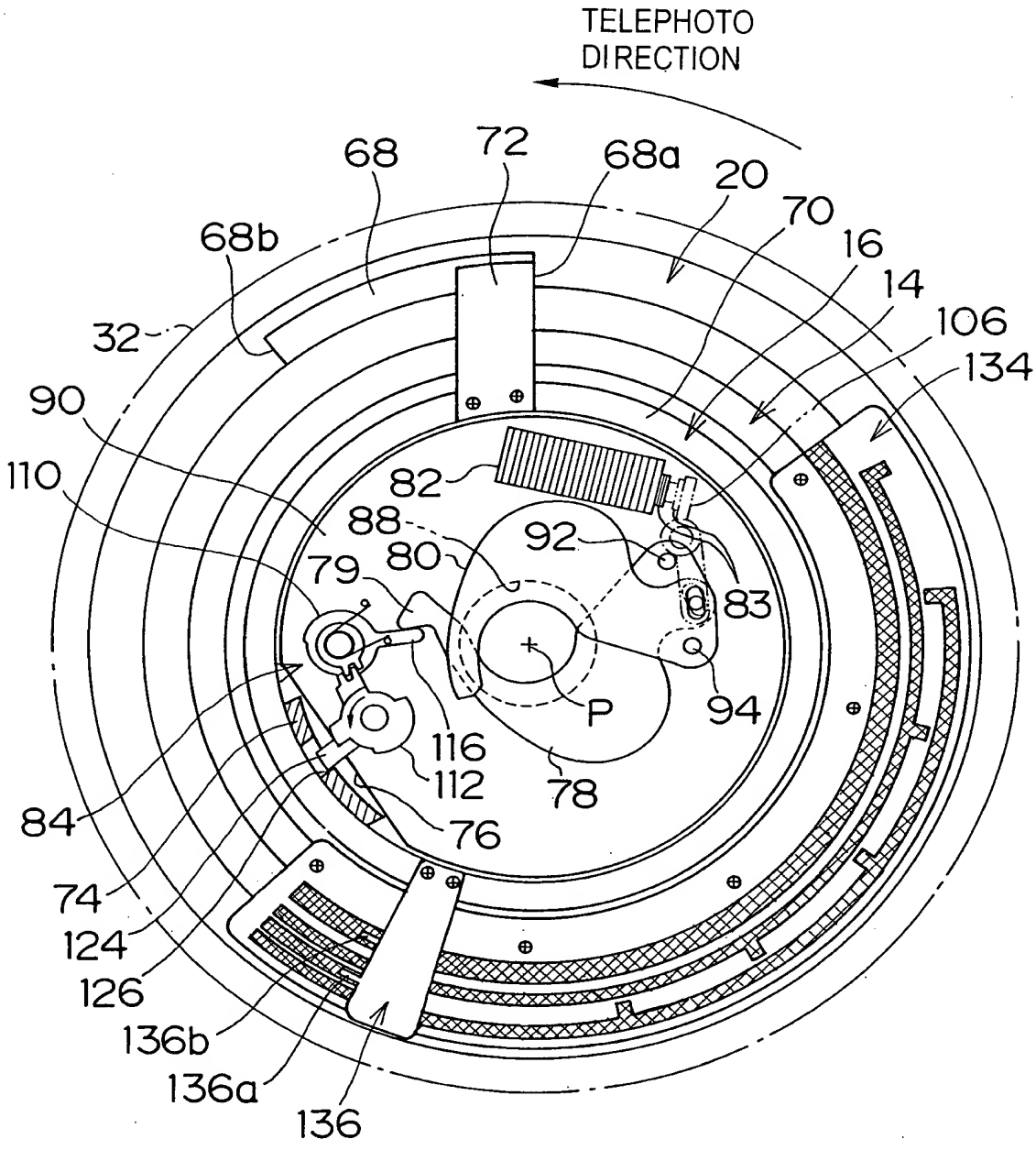
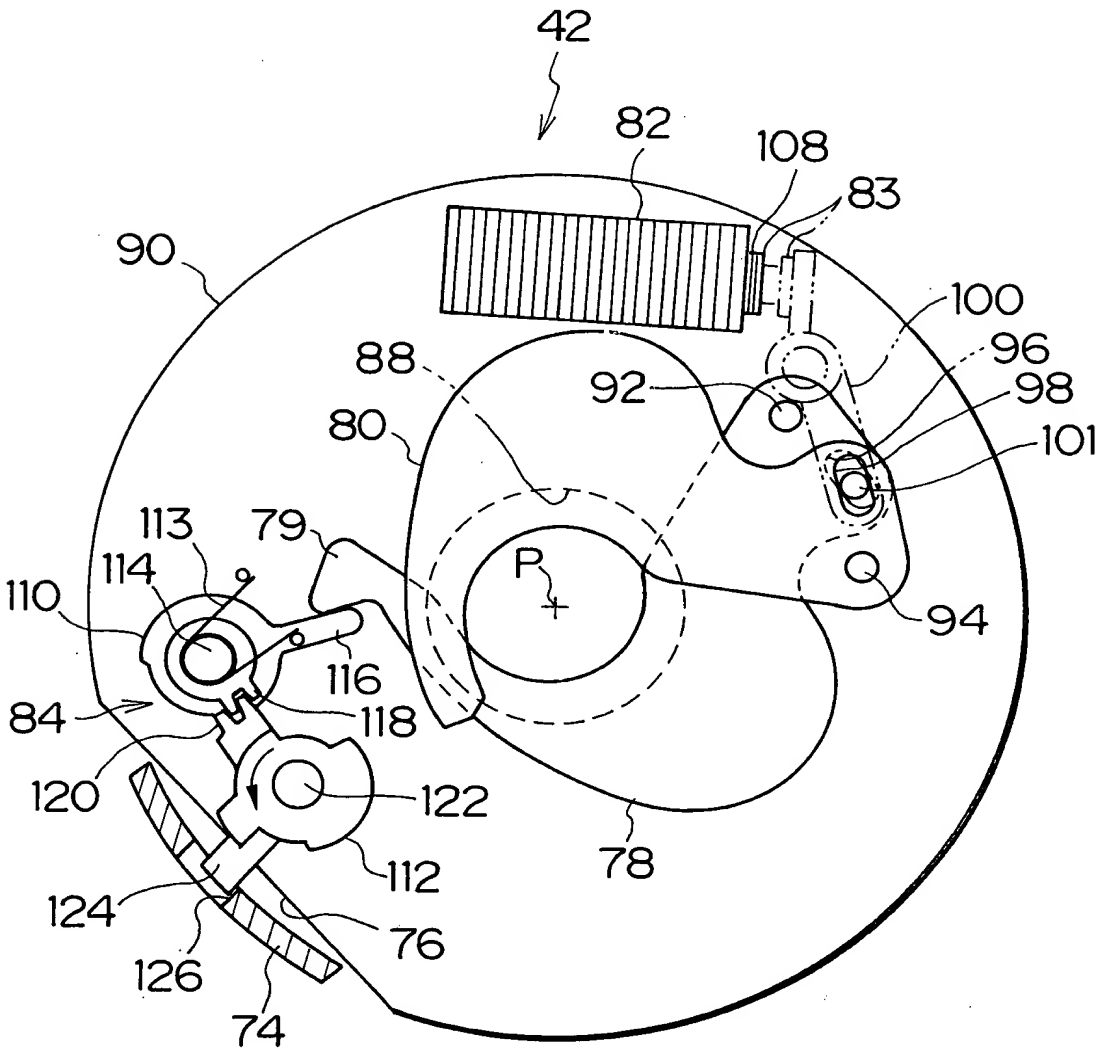

TELEPHOTO
DIRECTION
68
72
68a
20
70
16
14
106
134
68b
32
90
110
82
88
92
80
79
83
P
94
116
112
78
76
84
74
124
126
136b
136a
136

FIG. 6


42
82
108
83
90
100
96
88
92
98
80
101
113
79
P
114
110
94
116
84
118
120
122
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112
124
76
126
74

FIG. 7

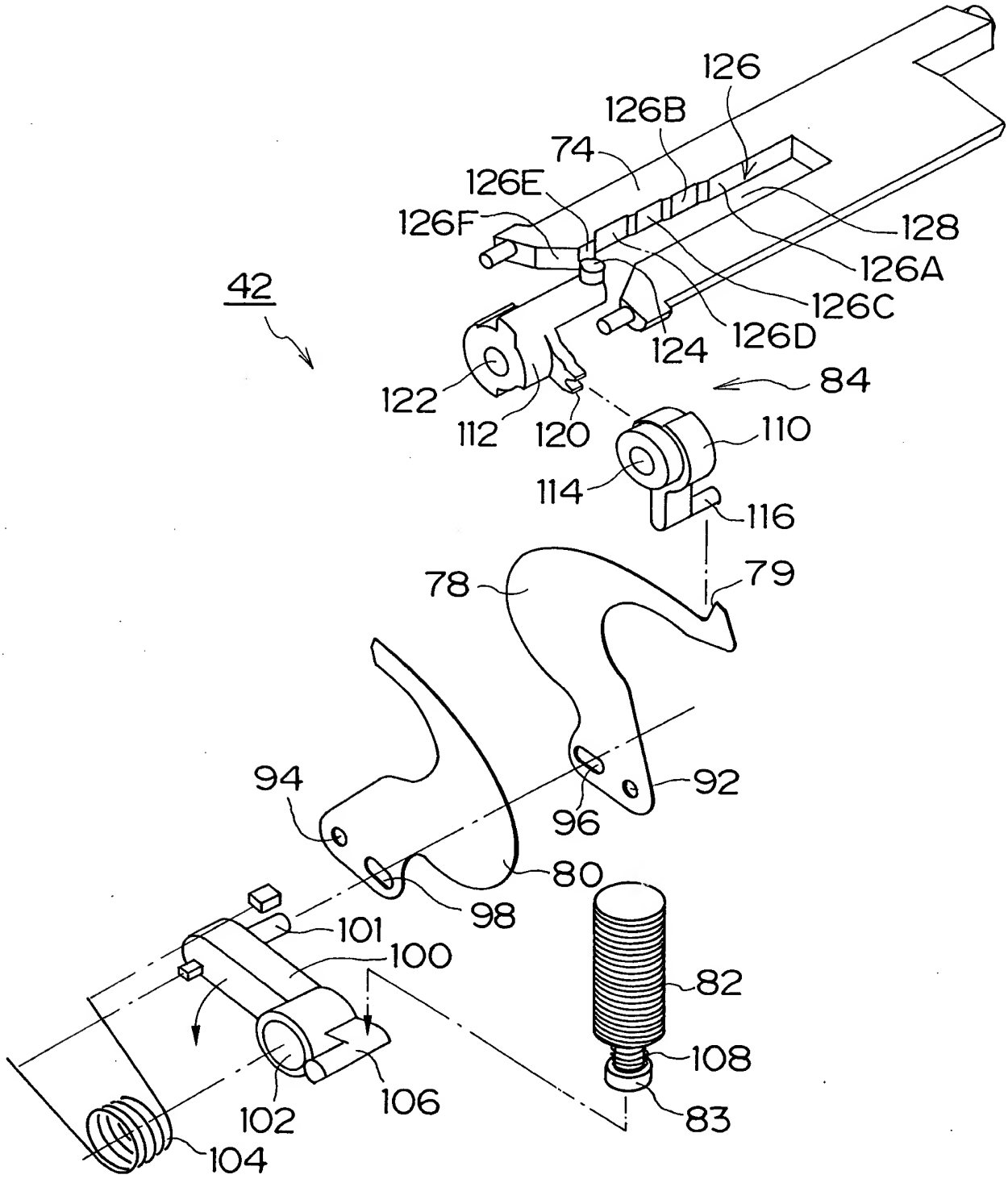


FIG. 8

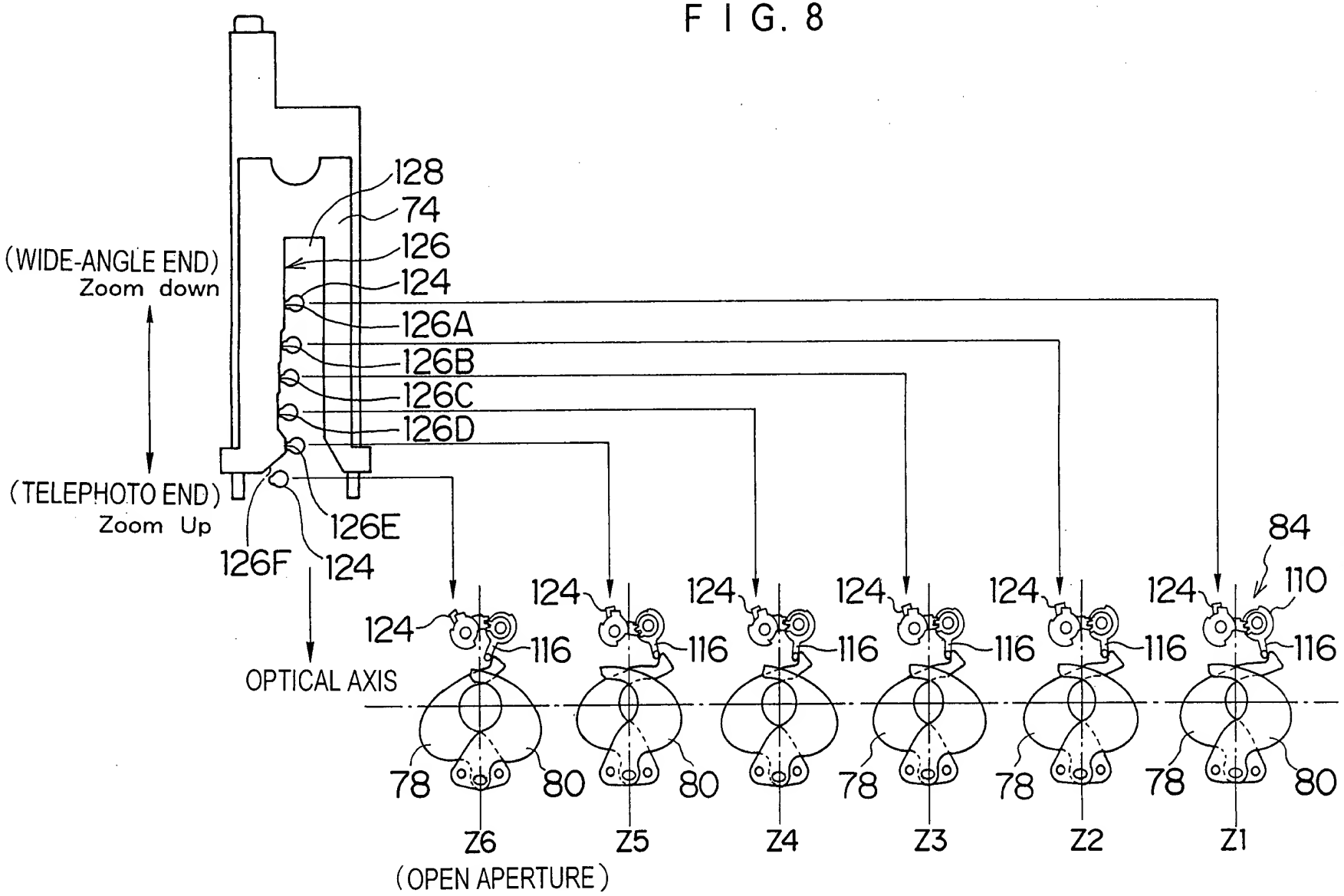


FIG. 9

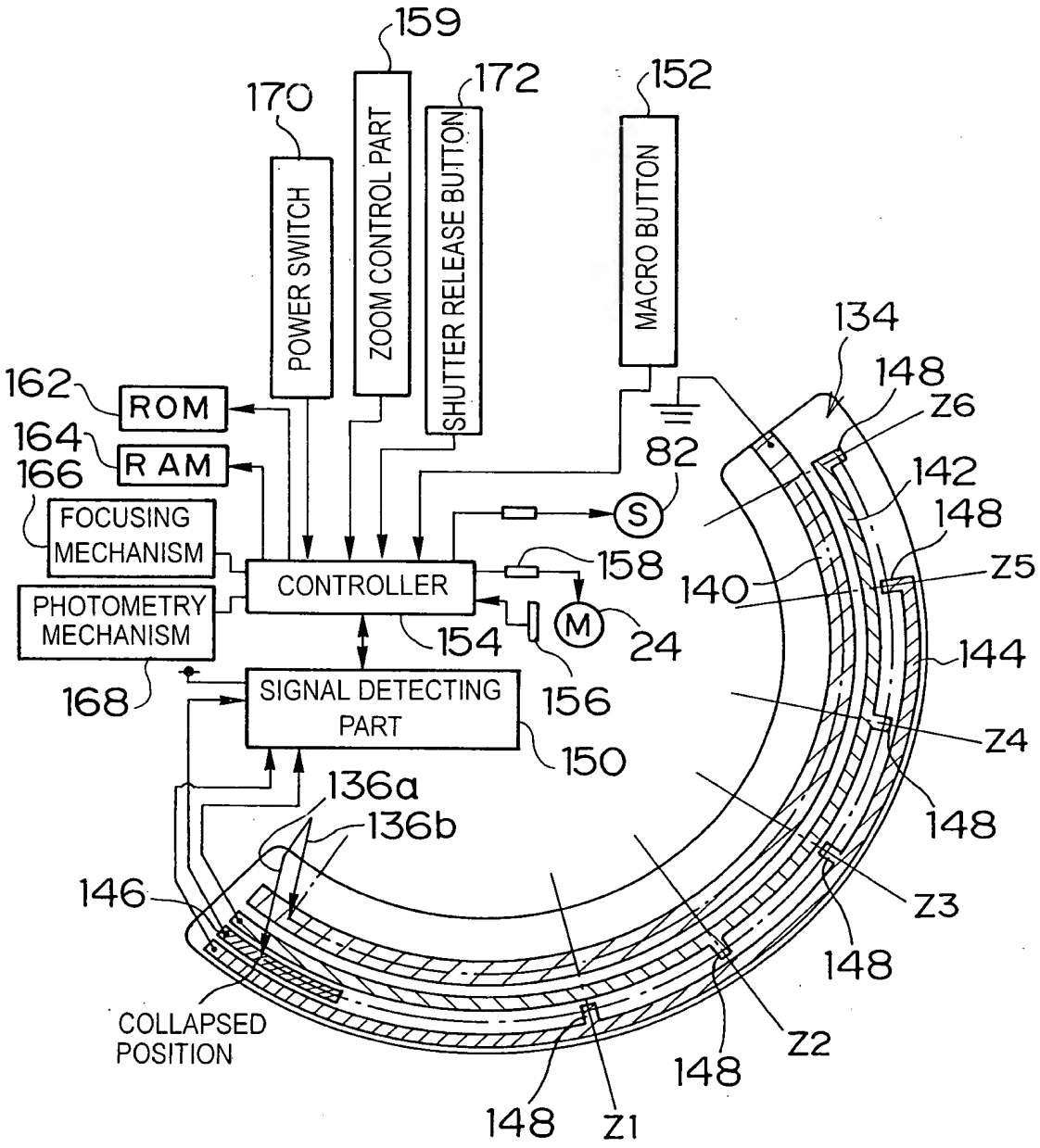

159
170
172
152
POWER SWITCH
ZOOM CONTROL PART
SHUTTER RELEASE BUTTON
MACRO BUTTON
134
148
Z6
162
ROM
164
R AM
166
FOCUSING MECHANISM
PHOTOMETRY MECHANISM
168
82
S
142
148
158
CONTROLLER
140
Z5
M
24
154
144
156
SIGNAL DETECTING PART
150
Z4
136a
136b
148
146
Z3
148
COLLAPSED POSITION
Z2
148
148
Z1

FIG. 10

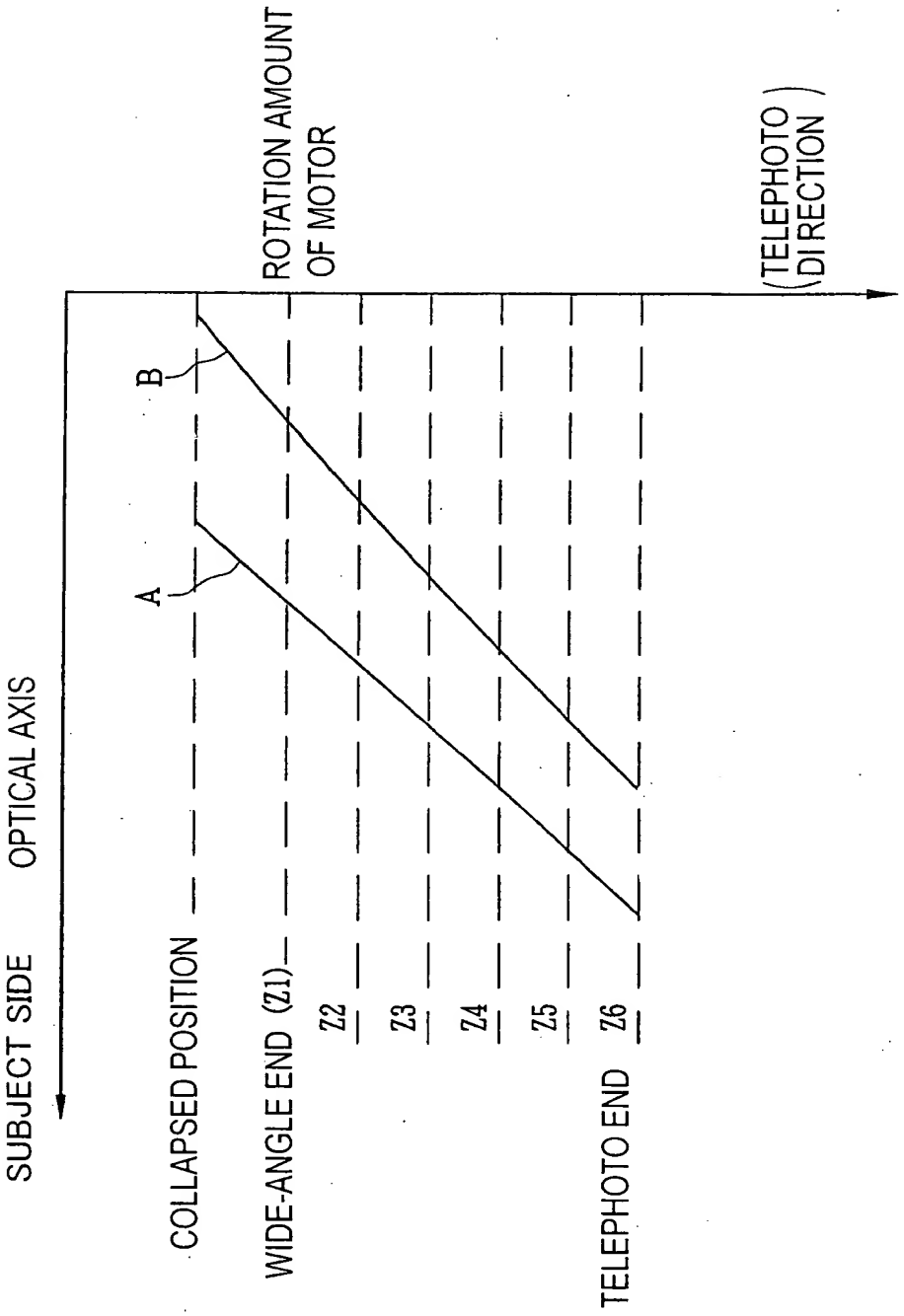
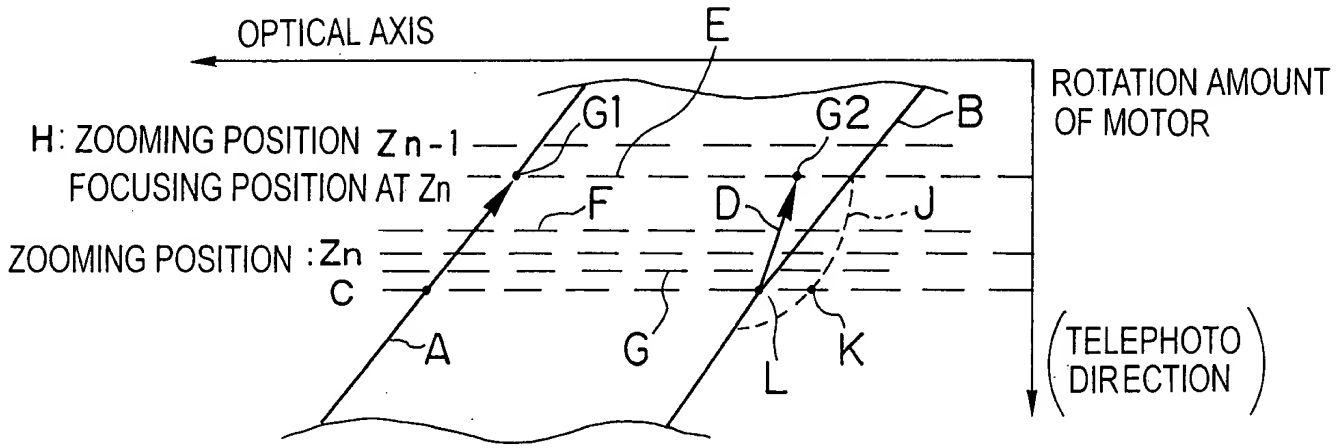


FIG. 11



E: INFINITY FOCUSING POSITION AT Zn
F: NORMAL SHORT-DISTANCE FOCUSING POSITION AT Zn
G: MACRO SHORT-DISTANCE FOCUSING POSITION AT Zn
J : CORRECTED CURVED LINE OF LOCUS K

FIG. 12

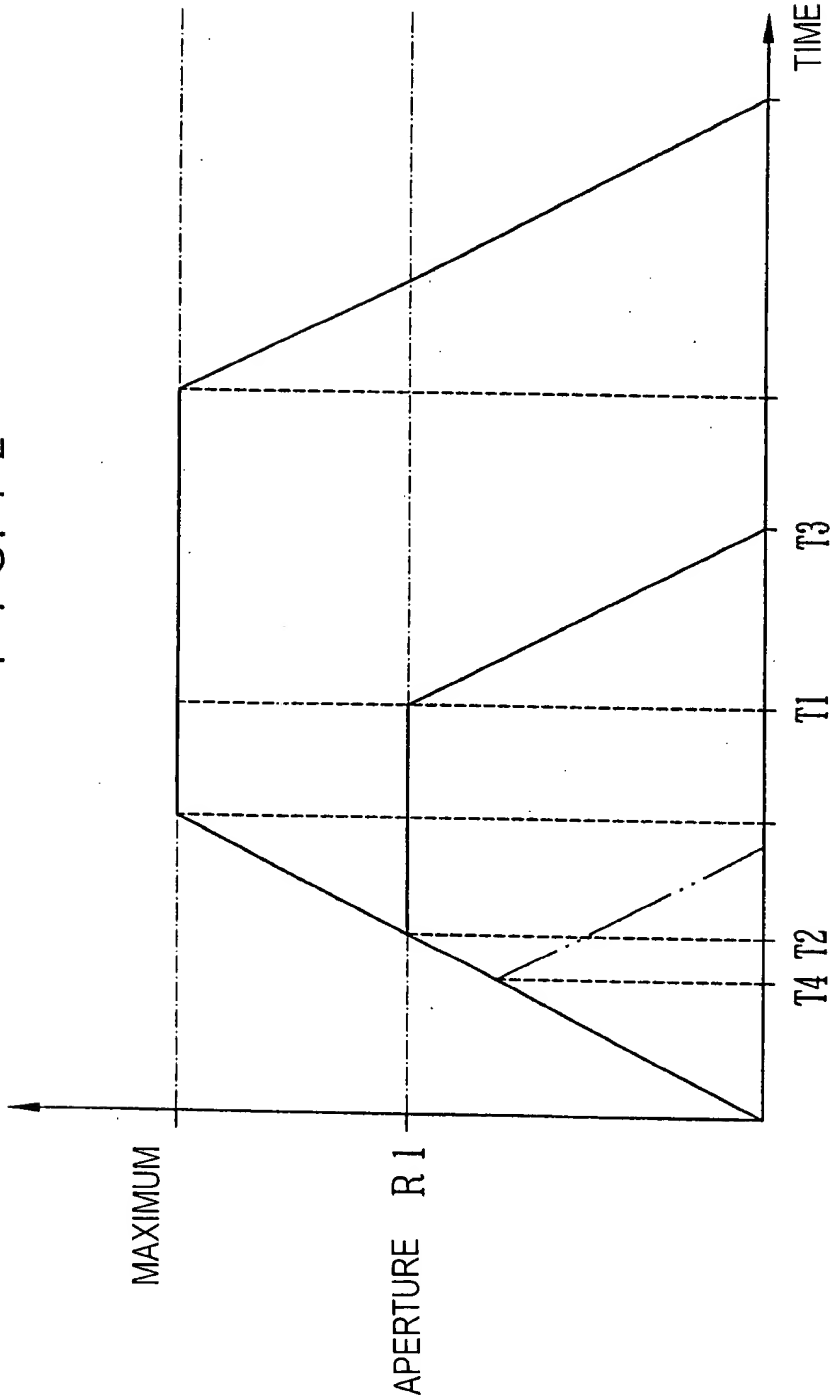


FIG. 13

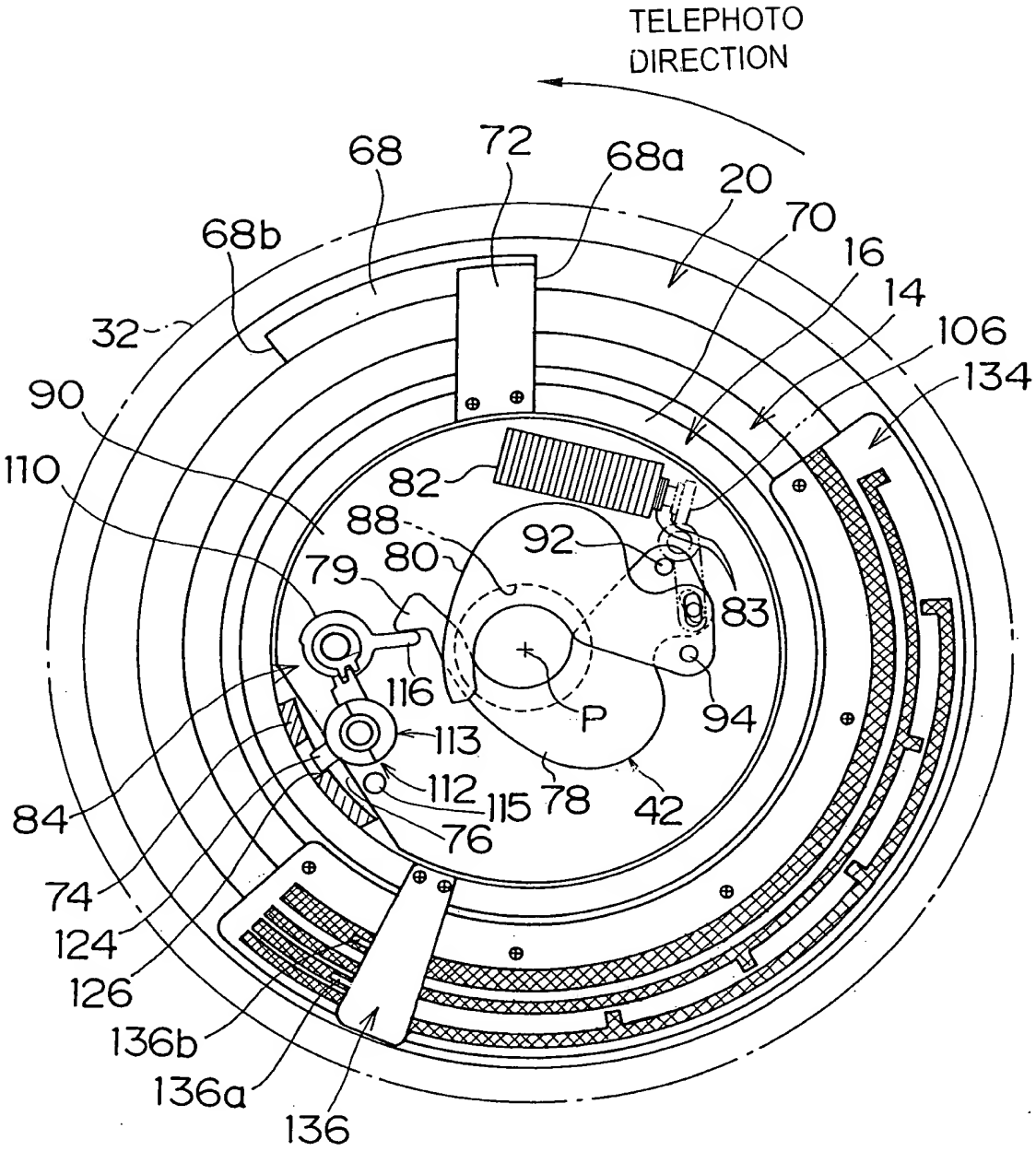
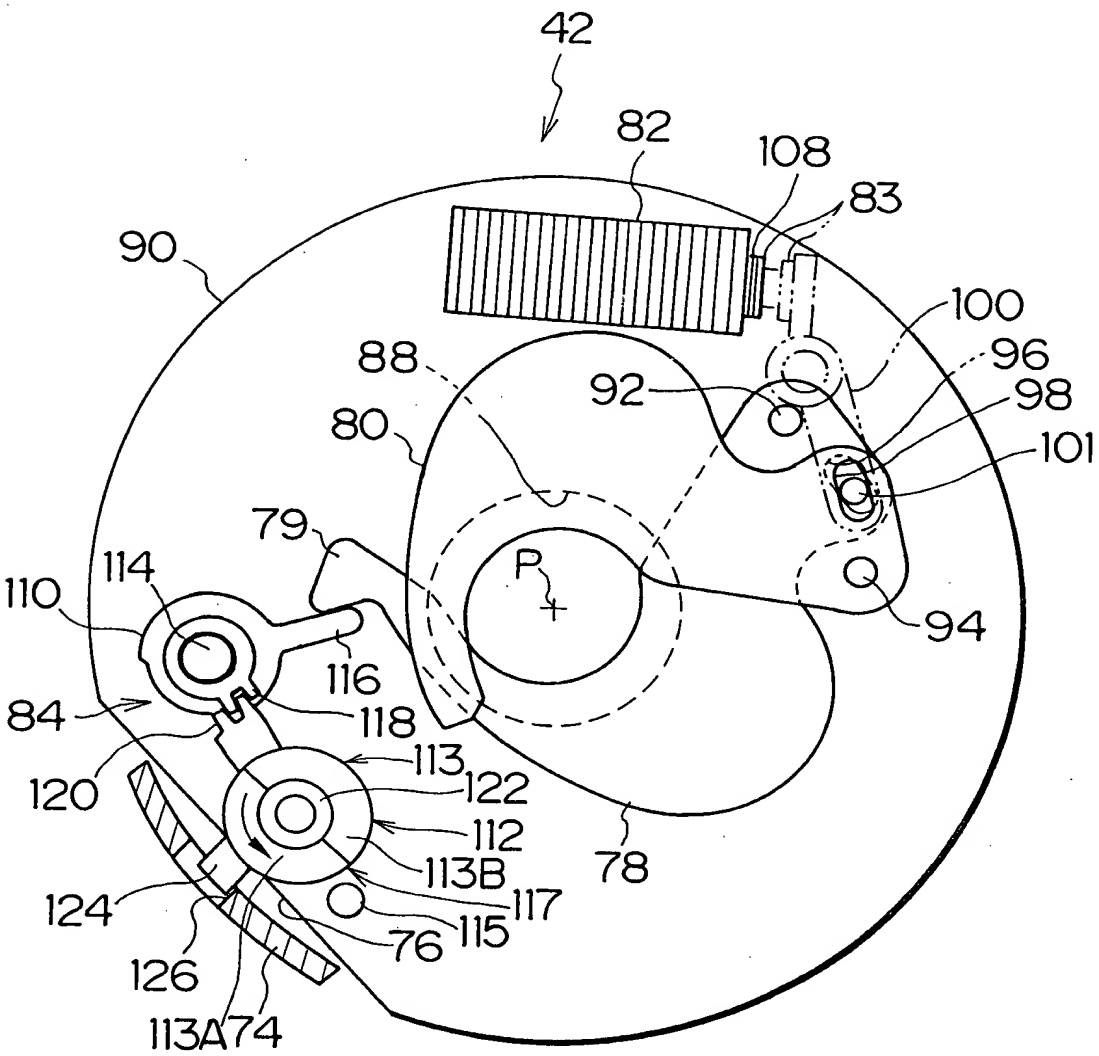


FIG. 14


42
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108
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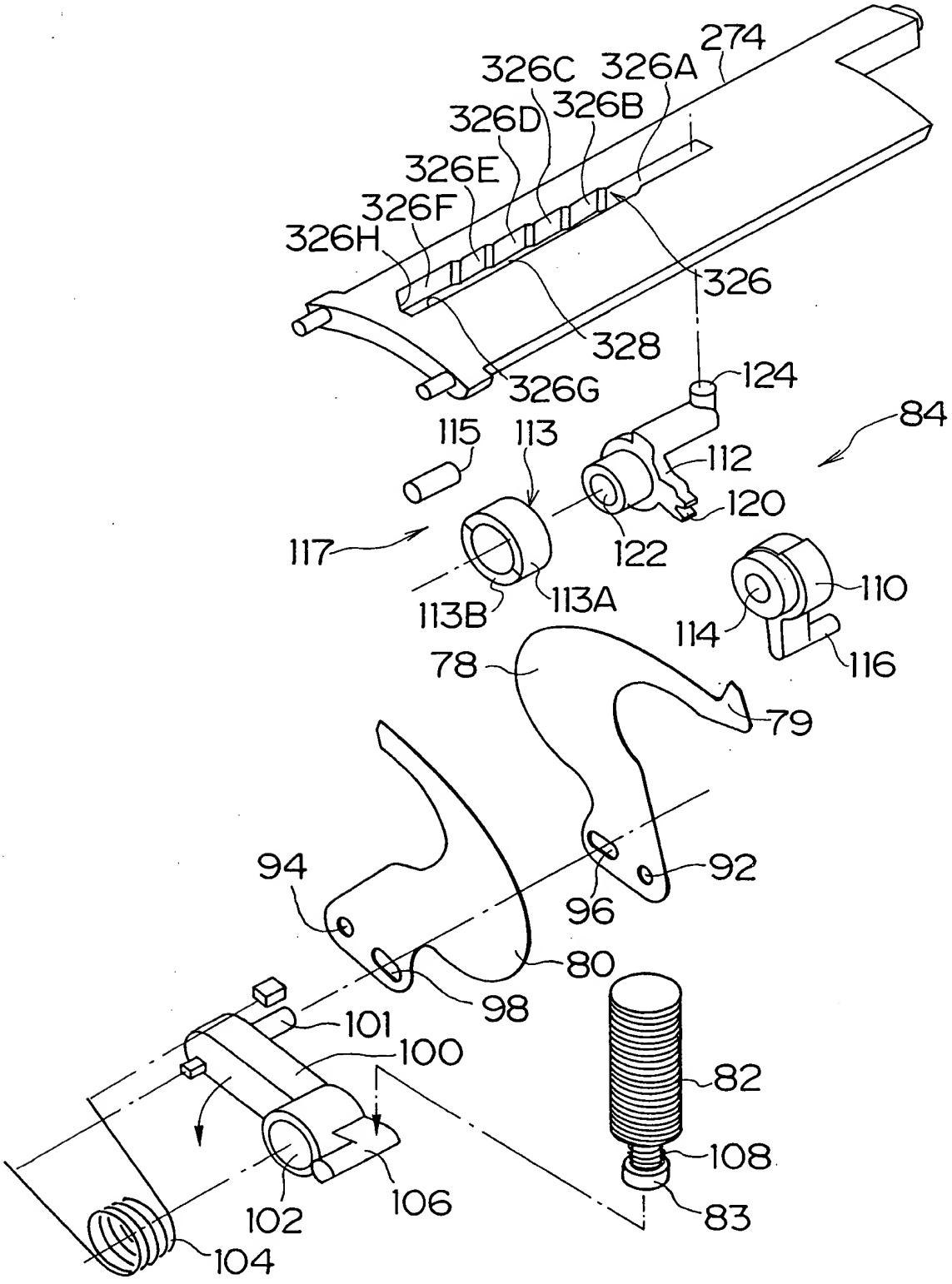
113B
124
117
115
76
126
113A
74

FIG. 15



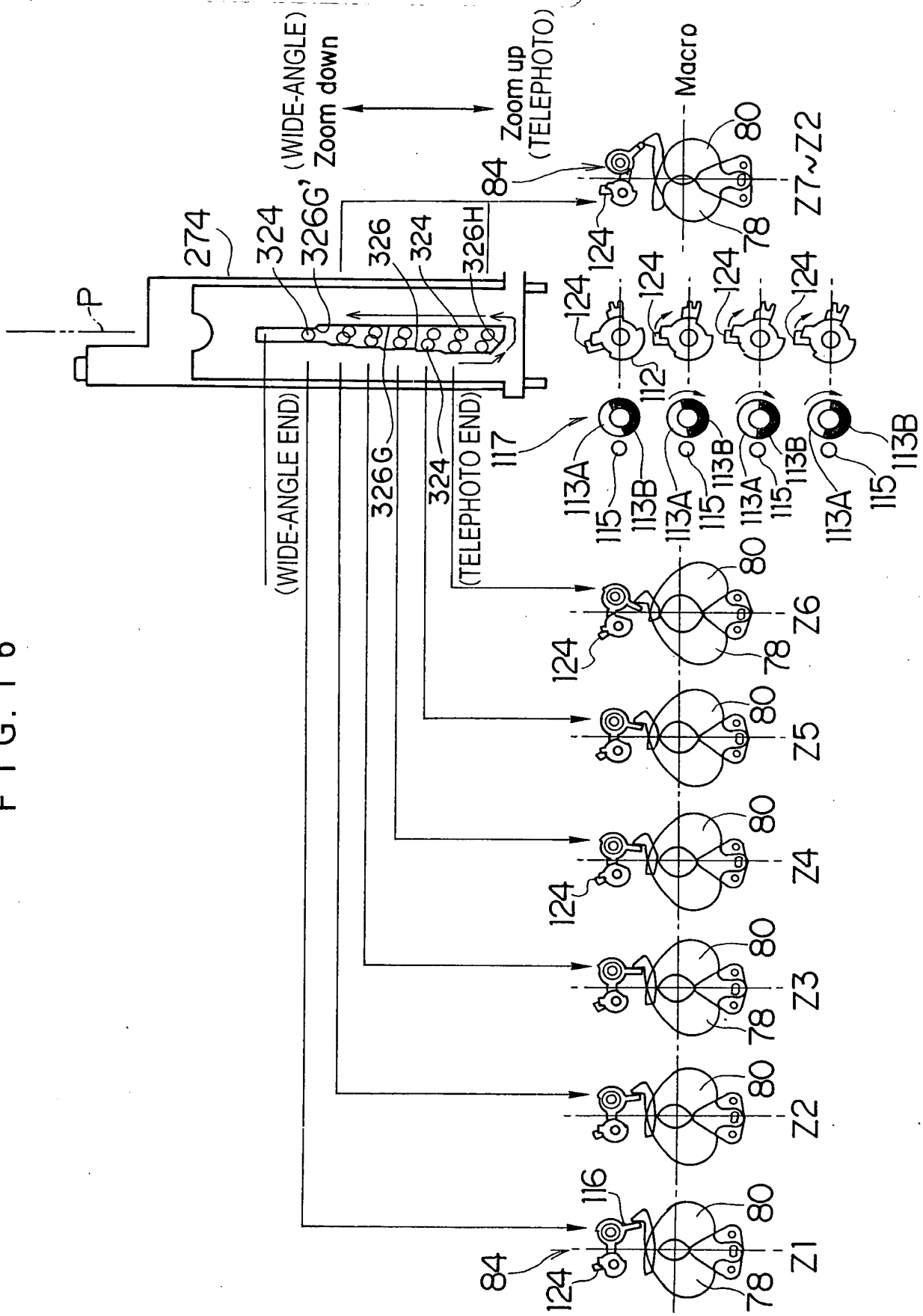

(WIDE-ANGLE)
Zoom down
Zoom up
(TELEPHOTO)
Macro
274
324
326G'
326
324
326H
P
(WIDE-ANGLE END)
326G
324
(TELEPHOTO END)
117
84
124
112
78
80
116
113A
113B
115
Z1
Z2
Z3
Z4
Z5
Z6
Z7~Z2

FIG. 16

FIG. 17

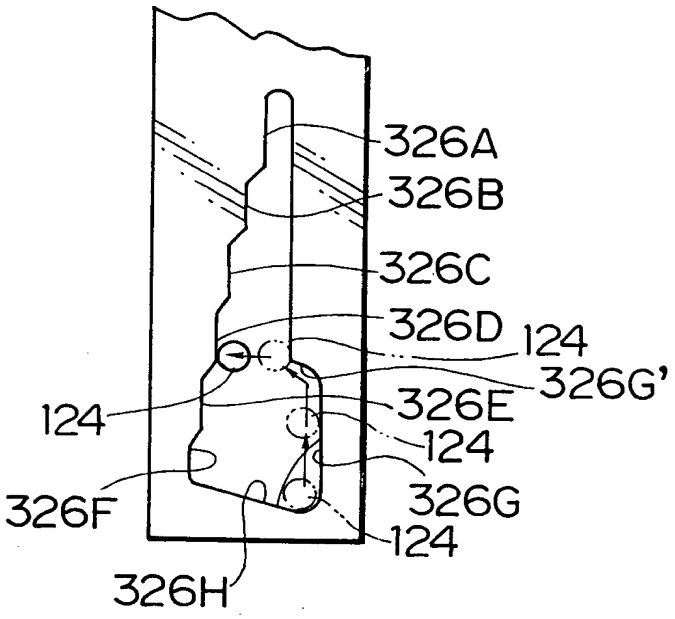


FIG. 18

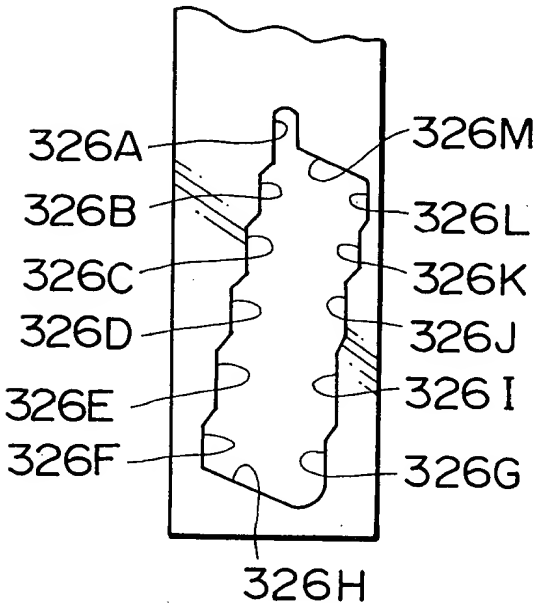


FIG. 19

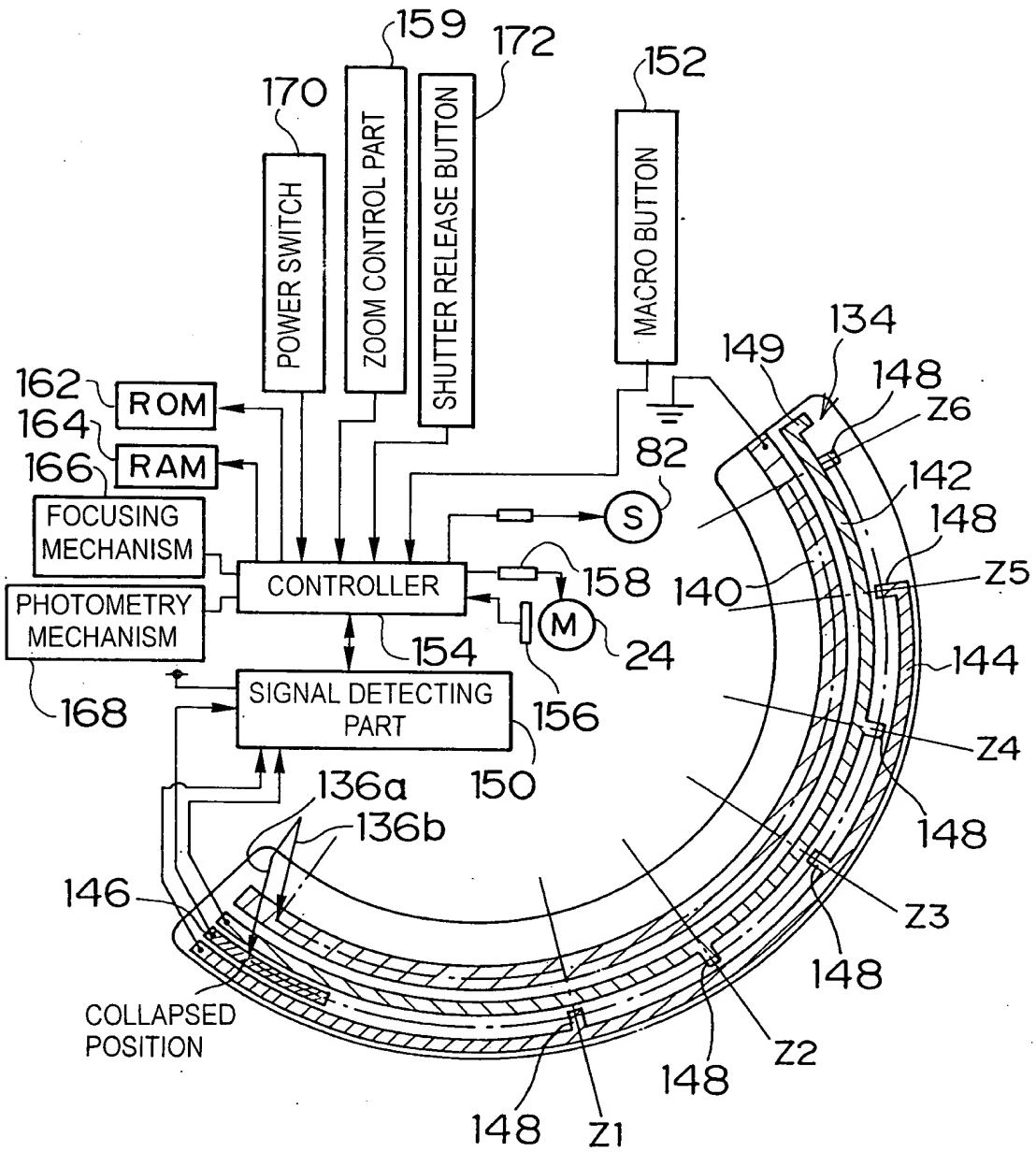

159
172
170
152
POWER SWITCH
ZOOM CONTROL PART
SHUTTER RELEASE BUTTON
MACRO BUTTON
134
149
148
Z6
162
ROM
164
RAM
166
82
142
FOCUSING MECHANISM
S
148
158
140
Z5
PHOTOMETRY MECHANISM
CONTROLLER
M
24
154
144
168
SIGNAL DETECTING PART
156
Z4
136a
150
136b
148
146
Z3
148
COLLAPSED POSITION
Z2
148
148
Z1

FIG. 20

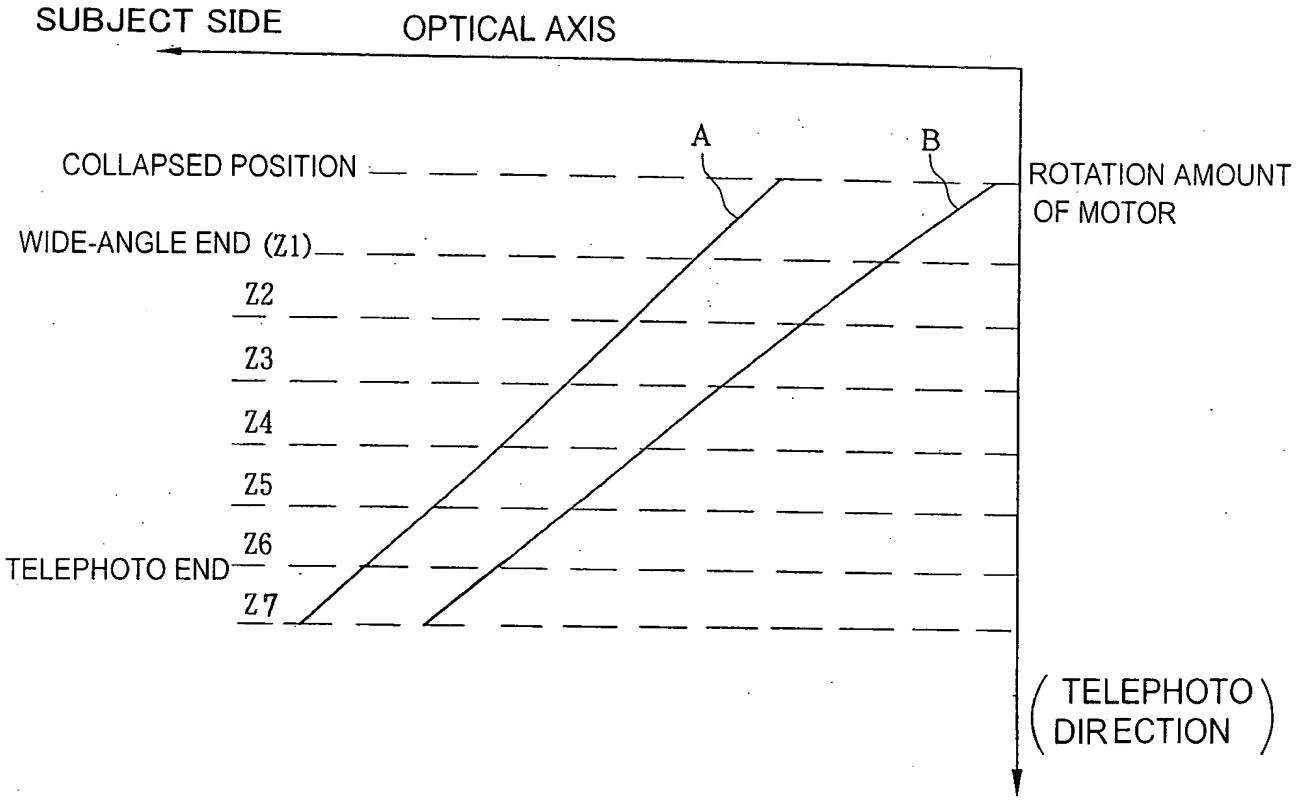
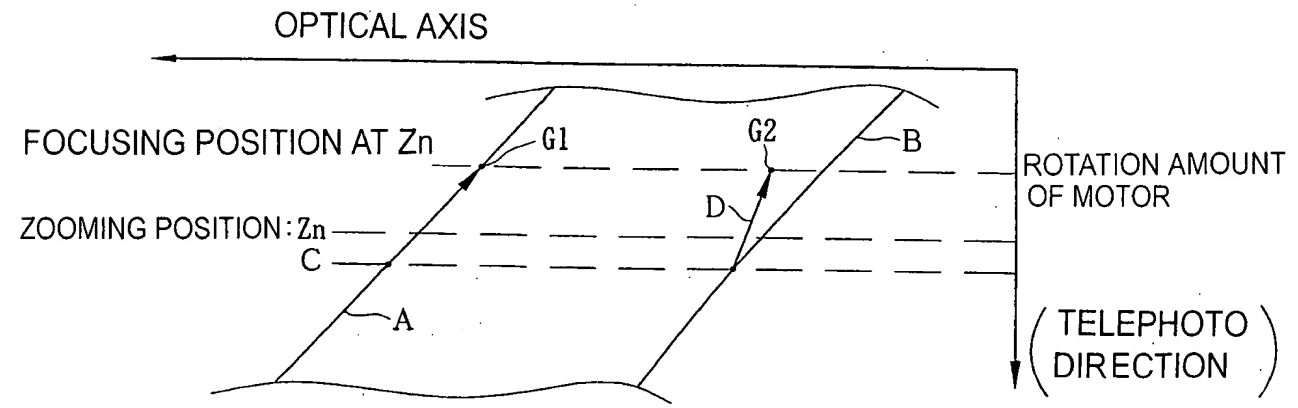

SUBJECT SIDE
OPTICAL AXIS
A
B
COLLAPSED POSITION
ROTATION AMOUNT OF MOTOR
WIDE-ANGLE END (Z1)
Z2
Z3
Z4
Z5
Z6
TELEPHOTO END
Z7
TELEPHOTO DIRECTION

FIG. 21


OPTICAL AXIS
FOCUSING POSITION AT Zn
G1
G2
B
ROTATION AMOUNT OF MOTOR
D
ZOOMING POSITION : Zn
C
A
TELEPHOTO DIRECTION